

CHEST TRAUMA

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Fracture of Ribs

- Most common injury to the chest is fracture of the ribs by direct blow.

- the most common Rib affected are → Seventh, Eighth, Ninth

- usually occur in mid-axillary line.. "more in angle of rib"

[N.B.] pt complain of pain over the chest

* the pain ↑ by Respiration & Cough → (Limitation of Respiration)

→ Infection. / Dx → clinically by bimanual compression.

• Investigation: ① Chest X-ray: Not always demonstrate of fracture.

(if pt is has → clinical sign of fractured Rib, he should be treated inspite of -ve X-ray)

* Repeat X-ray after 2 week → May show callus formation. → confirm Dx

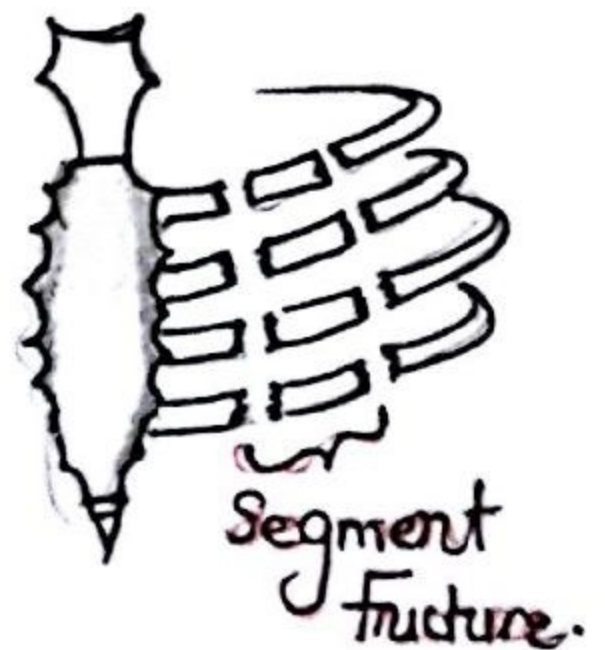
② Bone scan: more sensitive & detect fracture..

• Complication: ① Flail chest:-

Multiple serial & fracture of Ribs in two sites or places.

* Chest wall (Flail part) → ON inspiration the Flail part becomes indrawn by Negative Intra thoracic pressure..

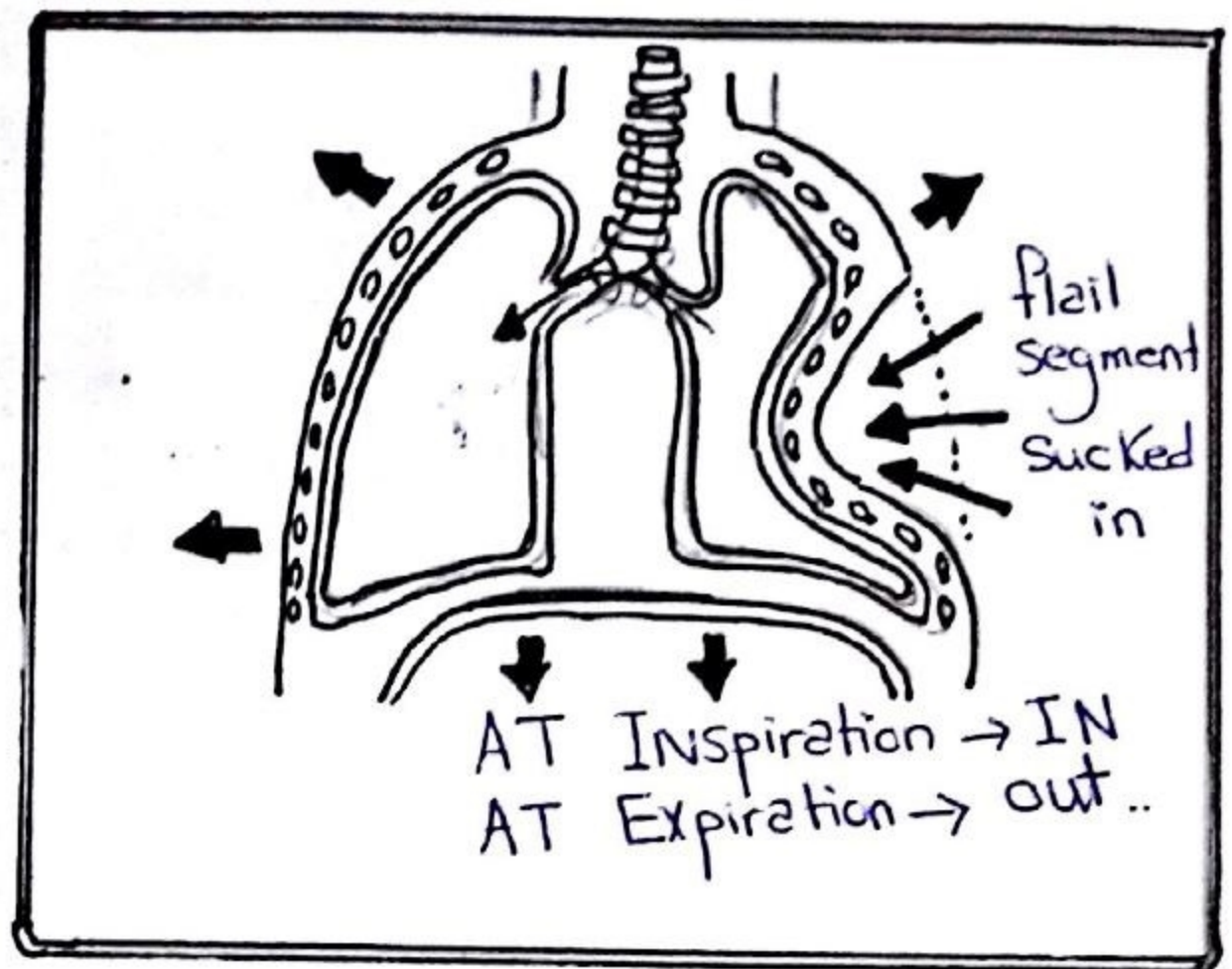
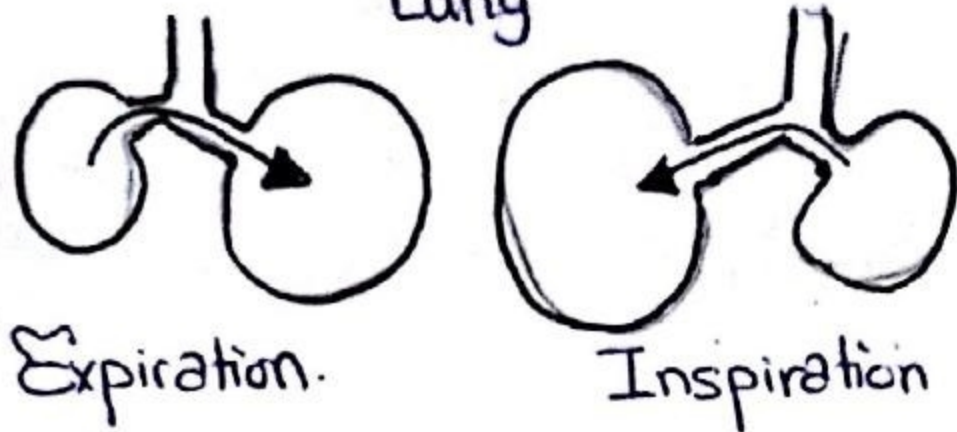
ON Expiration (Flail part) → pushed out while bony cage become contracted..
= paradoxical Movement



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*** Air Movement within Lung



* Flail chest may cause:-
 - Respiratory Failure type II due to failure of Adequate Expansion of affected site & also because of shunting of deoxygenated air from Lung on side of fracture to other Lung...

② pneumothorax:- Air Escape into the pleural cavity..

*** Tension pneumothorax:-

1. * result in formation of one way valve → Allowing air to be sucked in to pleural cavity at each inspiration but preventing air to escape..

c/p- ① rapidly ↑ dyspnea.

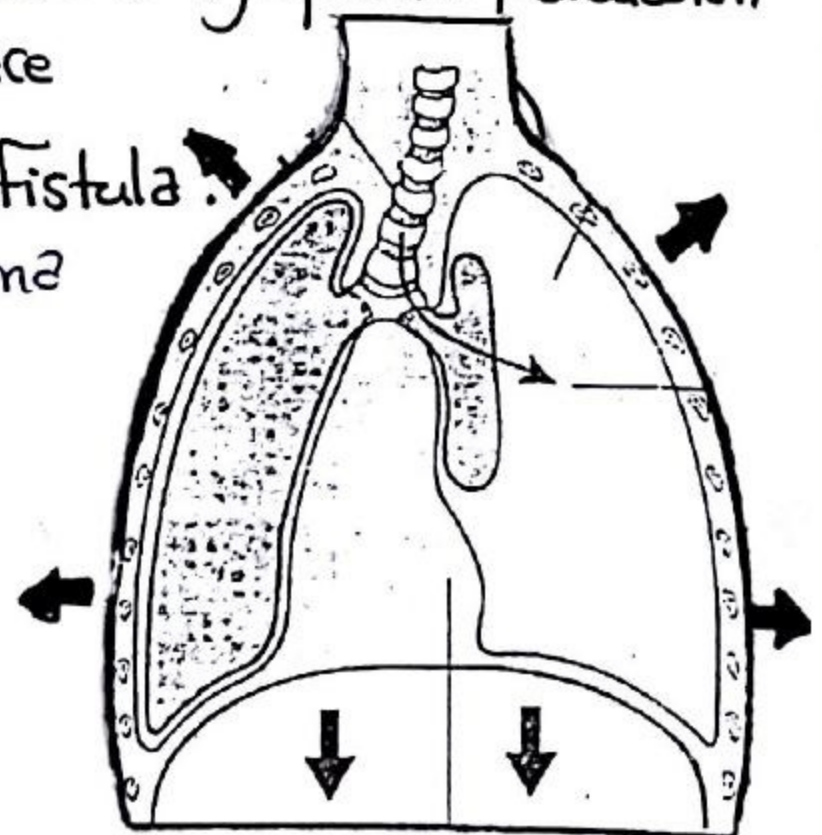
② deviated Trachea

③ Apex beat displaced Away from side of pneumothorax.

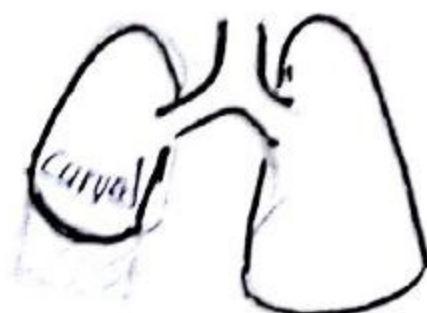
④ Cardiac dullness → may be absent

⑤ the chest on affected site → tympanic percussion
 & bulging of intercostal space

2- Internal valve: Broncho pleural fistula.
 in T.B, Empyema



③ Haemothorax:



* accumulation of Blood in pleural space..

the Bleeding is usually from an intercostal artery.
or may result from injury to heart or great vessels.



Haemothorax + pneumothorax → Haemopneumothorax

④ Subcutaneous Emphysema :- = Surgical Emphysema.

in fracture rib tears the overlying soft tissue

Allows Air to Enter subcutaneous tissue..

the skin over trunk & Neck & sometimes face

Give peculiar crackling feel to Examining fingers → Crepitation

in severe case face & neck may become Grossly swollen.

-NB:

(Surgical Emphysema is misleading as it is rarely caused by surgen)

Treatment:- of chest injury

① Airway controle :- → Endotracheal tube
oro pharyngeal tube.
- aspiration of vomit is prevented
by passing NGIT to ~~Exp~~ Empty Stomach.

② Breathing: Oxygenation
Monitor O₂ saturation
Intubation, Ventilation.

③ Sucking wound: Should be closed.
in Emergency → dressing pad applied over hole..

④ Lung Expansion:
achieved by insertion of Intercostal drain with
under water drainage..

⑤ Stop Bleeding

Flail chest treatment:

- ① - Support the flail segment: firm pad (compression) held by strapping (inward) this stops paradoxical movement & air shunting.
- ② - Intermittent positive pressure ventilator (IPPV): with stop paradoxical movement.

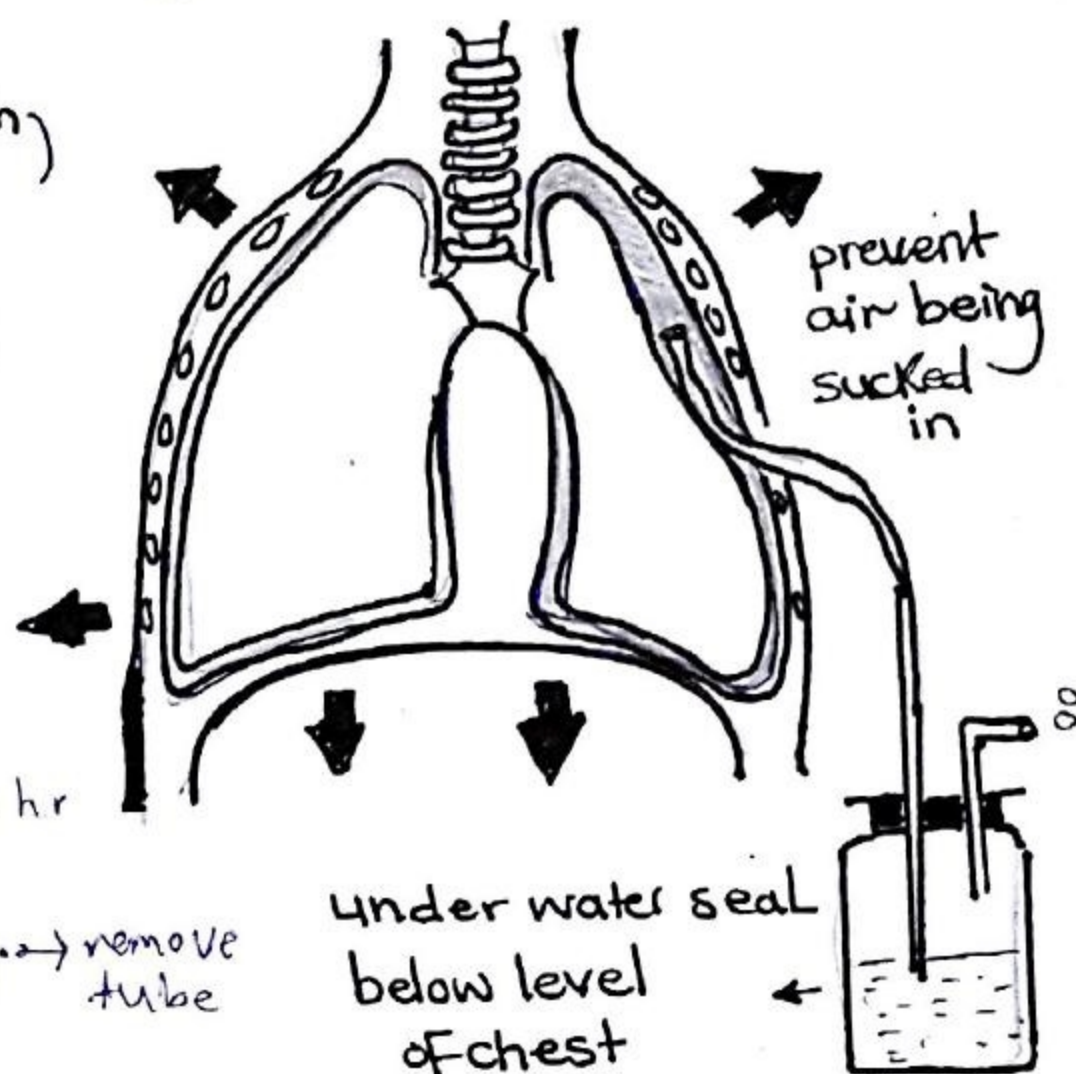
Tension pneumothorax: urgent Emergency

* chest tube inserted into pleural cavity via intercostal space (4th, 5th) in Anterior axillary line → connected to under water seal.

(N.B: use Local anaesthesia for skin & Bone)

N.B → if stop the drain of air ask pt to cough → if NO Air → club the tube for 24 hr

then do X-ray → Expanded of Lung → remove tube



* → Broncho pleural fistula: due to rupture of Bronchus into pleural space → should be suspected if the pneumothorax persists → May Require thoracotomy.

Cardiac Tamponade: Tension on Heart

This may follow open or closed injuries to the chest or upper abdomen.

- Clinical picture:
- ↑ in venous pressure ↓ Arterial pressure = ↓ B.P
 - Muffled heart sound Cardiogenic shock
 - Pt dyspnoic + congested Neck vein.

- X-ray: Enlarged cardiac shadow. (wide mediastinum) ^{pulsus paradoxus}

* Beck's Triad: congested Neck vein + Hypotension + Muffled Heart sound

* ttt: pericardiocentesis. [4]

Assessment of the Trauma patient

KM

1] primary survey :-

- A → air way
- B → Breathing
- C → Circulation & Haemorrhage control
 - I.V access (2 Large bore cannula)
(in antecubital fossa, alternative site for vascular access) :-

1] Central vein → Subclavian,
Femoral
Internal jugular.

2] Long saphenous vein

3] Intra-osseous Infusion → children only

- D → Disability & Drugs → Adrenalin
 - assessment of Neurological status which is important
 - pupillary size
 - level of consciousness.
 - Alert
 - Respond to vocal stimulus
 - " " painful "
 - unresponsive.

• E → Exposure.

2] Secondary survey

Complete History physical Examination

Reassessment of Vital Sign

Full Neurological Examination Glasgow coma criteria.

Investigation: Blood → Grouping & cross match, FBS, u/E/cr
LFT, Amylase, ABG.

X-ray - CT Head, Abdomen, chest.